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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/678,696

10/02/2003

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6453P012

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8791 7590 11/26/2007  
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| EXAMINER |
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SMITH, JEFFREY S

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| ART UNIT | PAPER NUMBER |
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2624

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| MAIL DATE | DELIVERY MODE |
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11/26/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/678,696 | <b>Applicant(s)</b><br>SAKUYAMA ET AL. |  |
|                              | <b>Examiner</b><br>Jeffrey S. Smith  | <b>Art Unit</b><br>2624                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 54-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/07</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on August 2, 2007 was filed after the mailing date of the Office action of July 19, 2007. The submission lists two references cited in a rejection from the Japanese Patent Office, as well as the Japanese rejection mailed May 11, 2007. Applicant stated in the IDS that "no item of information contained in the Information Disclosure Statement was cited in a patent office in a counterpart application." Applicant appears to have inadvertently selected an inappropriate statement from 37 CFR 1.97(e). Because this IDS lists two references cited in a Japanese rejection, along with the Japanese rejection, and was submitted within three months of the rejection, the Examiner assumes that applicant meant to make a statement under 37 CFR 1.97(e)(1). Applicant is requested to explicitly make the appropriate statement in the next response. If this is the case, then the fee should not have been paid. See 37 CFR 1.97(c)(1). Otherwise, applicant would be receiving a final rejection. See MPEP 609.04(b)II.A.2.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 54-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese application publication number 2001-275119 by Itokawa ("Itowkawa") in view of Japanese application publication number 10-136352 by Matsushita Electric Ind. Co. Ltd. ("Matsushita"), which were cited by applicant and further in view of U.S. Patent 7,050,640 issued to Acharya et al. ("Acharya").

Itokawa discloses a first unit configured to select high-frequency sub-bands of each of one or more blocks into which each of frames of interlaced images forming a moving image is divided, the frames being hierarchically compressed and encoded into code stream data by performing discrete wavelet transform on pixel values of each of the blocks (see figure 1 and steps 512, 513 of figure 9);

a second unit configured to calculate a value of each of LH and HH components (s513); and

a third unit configured to compare the calculated value with a threshold and to estimate that motion is high-speed if the calculated value is greater than the threshold and that the motion is low-speed if the calculated value is less than or equal to the threshold (s515).

The values that are calculated for estimating an amount of motion by Itokawa are entropy values instead of values for an amount of codes. As described by the Japanese examiner, calculating values for an amount of codes instead of calculating an entropy value would lead to the predictable result of estimating an amount of motion because the entropy value is a function of the amount of codes of the LH sub-band:

Whether the computed value of entropy of LH component is larger or not relative to the threshold value is judged in order to switch between the frame unit

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processing and field unit processing depending upon the presence or absence of the movement between the field, more specifically, the movement amount between the field is estimated by the computed value of the entropy of LH component.

Generally, it is obvious for a person who is familiar with the art that the entropy and code amount are proportionate to each other at the lossless compression time. Therefore, a person with an ordinary skill in the art can easily conceive computing the code amount at the time of lossless compression of LH component instead of computing the entropy component disclosed in [Itokawa].

(Japanese Notice of Rejection transmitted May 11, 2007).

Itokawa does not disclose calculating the ratio of the codes in the LH component to the codes of the HL component, and comparing the ratio to a threshold.

However, comparing the ratio of the LH and HL components to a threshold would have been obvious to one of ordinary skill in the art at the time of the invention. The fact that the amount of code of the LH component gets larger than the amount of code of the HL component when a video image with many lines, such as an interlaced image, is put through wavelet conversion is disclosed by Matsushita, paragraph 67. Therefore, modifying Itokawa to compare the ratio of LH over HL code amounts to a threshold instead of comparing only the LH entropy to a threshold would have yielded the predictable result of estimating an amount of motion in the image.

Itokawa and Matsushita do not disclose a plurality of sub-blocks in high frequency sub-bands and estimating motion in the selected sub-block.

Acharya discloses selecting one of a plurality of sub-blocks in high frequency sub-bands and estimating motion in the selected sub-block (figure 13 and col. 10 line 60 through col. 11 line 10).

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It would have been obvious to one of ordinary skill in the art at the time of invention to divide the LH and HL code blocks of Itokawa into sub-blocks and to calculate motion for a selected sub-block for the benefit of reducing errors as taught by Acharya in column 10.

Claims 58 and 62, which contain similar elements expressed in method and computer readable recording medium forms, are rejected for these reasons.

For claims 55, 59 and 63 Acharya discloses calculating sub-blocks in which the motion is estimated to be high-speed and sub-blocks in which the motion is estimated to be low-speed in each of the frames (cols. 10-11). Modifying the blocks of Itokawa and Matsushita to calculate a ratio of the number of high-speed motion sub-blocks to the number of the low-speed motion sub-blocks, and to compare the ratio with a threshold to estimate an amount of motion in the corresponding frame would have been obvious to one of ordinary skill in the art at the time of the invention, because one of skill in the art at the time of invention is able to predict that when a frame has more high-speed sub-blocks and less low-speed sub-blocks, the frame is likely to have motion.

For claims 56, 60 and 64, Acharya discloses wherein the amounts of codes of the selected one of the sub-blocks are amounts of losslessly compressed codes.

For claims 57, 61 and 65, Acharya discloses the amounts of codes of the selected one of the sub-blocks are amounts of codes before bit truncation.

***Response to Arguments***

Applicant's arguments with respect to claims 54-65 have been considered but are moot in view of the new ground(s) of rejection.

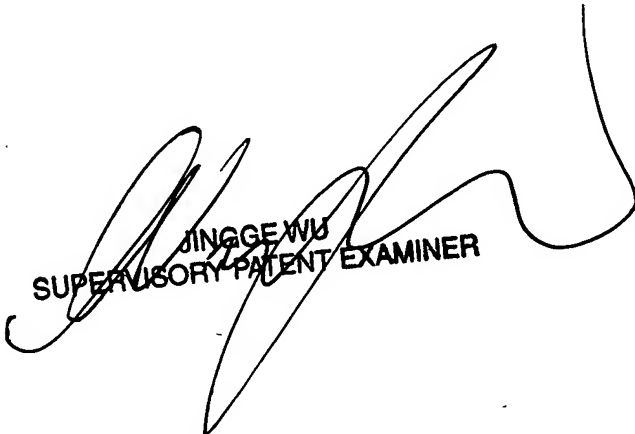
The current rejection is based largely on the results of the action from the Japanese Patent Office. If the Japanese Patent Office has mailed a subsequent Office action, the subsequent action is relevant to patentability. If applicant has amended the claims in Japan to successfully overcome the prior art cited in the Japanese rejection, providing this information would be helpful in expediting prosecution.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey S. Smith whose telephone number is 571 270-1235. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JSS  
November 19, 2007

  
JINGGE WU  
SUPERVISORY PATENT EXAMINER